Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
July 2001

This report summarizes Los Alamos National Laboratory (LANL) activities completed during July of fiscal year (FY) 2001 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities described in the CMS plan ([LA-UR-98-3918]), which was submitted to the New Mexico Environment Department-Hazardous Waste Bureau [NMED-HWB] on 9/30/98, and approved by NMED-HWB on 9/8/99), and other related activities are described herein.

Description of Activities and Contacts

High Performing Team (HPT) Activities – The 260 HPT meeting scheduled for July 9, 2001 was cancelled due to illness on the part of one of the NMED participants. The meeting was rescheduled for August 6, 2001.

RCRA Facility Investigation (RFI) Report and CMS Plan– No new activities occurred during this reporting period.

Best Management Practices (BMPs)– BMPs are inspected quarterly and following significant precipitation events. No BMP repairs were required this month.

CMS Hydrogeologic Investigations–CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as continuing investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling program includes collecting samples at Martin and Burning Ground spring every other day for stable isotopes. Quarterly sampling was completed during July 2001. This round of quarterly sampling also included the first sampling for RDX by-products.

The wells, both alluvial and deep, were checked for both presence and level of water. All five alluvial wells in Canon de Valle contained water. Overall water levels in the hydrologic system are low. No water was present in two alluvial wells in Martin Spring Canyon, in the 90s Line Pond, or at the Fishladder waterfall area. All of the intermediate depth boreholes were dry. A suite of flow-integrated samples was collected from the TA-16 springs.

Four samples from precipitation events were collected and archived for analysis during this reporting period.

Drilling was initiated at the CDV R-37-2 CMS well site. The readiness review was completed. Site preparation, including building of the drill pad was completed. Drilling with the DR-24 drill rig was initiated on July 21, 2001. Drilling was completed to 1284 ft. as of July 31, 2001. A survey using the LANL geophysical tools was completed. The following preliminary observations can be made, based on drilling to date: 1) minimal

perched water appears to be present in the borehole, based on the video survey. The thick flowing perched zone present in R-25 was not observed; 2) the preliminary geologic contacts are: Tshirege Formation (Fm) to ~ 490 ft, Cerro Toledo Fm (~490 to ~610 ft), Otowi Fm (~ 610 to ~ 900 ft), Puye Fm (~ 900 to ~ 1200 ft). and Tschicoma Dacite to the bottom of the hole as of 7/31/01. These data diverge from predictions from the hydrogeologic model, in particular, Tschicoma dacite was not predicted to be found in the borehole. These data also suggests that the Otowi-Puye contact and the Cerro Toledo-Otowi contacts dip southeastward from the R-25 area.

Ecological Risk Pilot–

LANL and NMED personnel discussed the draft study design for the aquatic ecosystem. The aquatic system study design develops two lines of evidence for adverse effects in Cañon de Valle. They are a survey of benthic macro-invertebrates and toxicity testing with *Chironomous tentans*. The survey data will be compared to previous survey data for Cañon de Valle and toxicity data will be compared to sediments collected in Starmer's Gulch. The choice of Starmer's Gulch as a reference location for toxicity testing was made by the HPT. The benthic macro-invertebrates samples were collected in May. The sediment samples for toxicity testing will be collected in September.

CMS Bench and Pilot Studies–Bench and pilot studies continued in collaboration with the Innovative Treatment Remediation Demonstration (ITRD) Program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Studies include:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). The LANL portion of this study has been completed.
3. At Pantex, a study of in situ anaerobic bioremediation of HE using gas-phase carbon additions.
4. A study of ex situ anaerobic bioremediation of HE-contaminated soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment. The LANL portion of this study has been completed.
5. A study of HE composting. Amendments appropriate to northern New Mexico were tested on both clean and contaminated soils. The LANL portion of this study has been completed.
6. A study of immobilization of barium-contaminated sediments from Cañon de Valle. A preliminary study has been completed and further investigations are planned for late summer of 2001.
7. Phytoremediation studies in Cañon de Valle. Native plants are being evaluated for their ability to remove HE from surface waters. Preliminary results suggest that low levels of phytoremediation are occurring in the Burning Ground spring area.
8. Oxidation, reduction, and in-situ bioremediation studies of groundwater contamination at Pantex.

The Stormwater Management System units that were installed in Martin Spring Canyon were sampled.

***Interim Measure* (IM)** –

Activities at the TA-16-260 IM were reinitiated. A readiness review was completed for the removal of additional soil materials and for soil shipments. An additional 30 cubic yards of high-RDX hot spots were removed and the re-excavated locales were resampled.

Public and Stakeholder Involvement– None

Percentage of CMS Completed

LANL estimates 79 % of the CMS has been completed to date. Note that this percentage does not reflect the deep wells that will be drilled per the CMS plan addendum.

Problems Encountered/Actions to Rectify Problems

General Problem (1) The Cerro Grande fire has severely impacted the 260 RFI/CMS activities. These problems have been discussed in detail in previous monthly reports.

Action to Rectify General Problem (1): LANL will work closely with NMED through the HPT to mitigate the effects of the Cerro Grande fire. Effects of the fire on the monitoring data in Canon de Valle are being addressed.

CMS Hydrogeologic Investigations

Problem (1): Questions relating to the quality of data from well R-25 remains a concern to the TA-16-260 team.

Action to Rectify Problem (1): LANL will evaluate the data from the quarterly sampling of the R-25 well to evaluate its reliability.

CMS Bench and Pilot Studies

None.

IM

None.

Key Personnel Issues

None

Projected Work for August 2001

RFI Report and CMS Plan

- No work is scheduled for this month.

BMPs

- Inspection of existing BMPs quarterly or following significant precipitation events will continue.

CMS Hydrogeologic Investigations

- Maintenance of autosamplers
- Checking for levels and presence of water in alluvial and deep wells.
- Sampling of flow-integrated autosamplers
- Continued precipitation monitoring and sampling for stable isotopes.
- Potholing (shallow excavation to investigate water occurrence in the saturated alluvium) in Canon de Valle.
- Data analysis
- Continued drilling, geophysics, well construction, and well development for CMS well CDV-R-37-2.

Ecological Risk Pilot

- Finalization of the study design for the aquatic ecosystem in Canon de Valle.

CMS Bench and Pilot Studies

- Evaluation of data from Stormwater units

IM

- Shipping of solid waste to Rio Rancho landfill and D003 waste to Lake Charles Louisiana

- Finalization of site-restoration activities, including decommissioning of zero-discharge dam

- Data analysis and writing of IM Report

Public and Stakeholder Involvement

None planned